

Chapter ILHR 85

SUBDIVISIONS NOT SERVED BY PUBLIC SEWERS

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Note: Chapter H 65 as it existed on May 31, 1983 was repealed and a new Chapter ILHR 85 was created effective June 1, 1983.

SUBCHAPTER I—SCOPE AND APPLICATION

ILHR 85.001 Purpose. Pursuant to s. 145.23, Stats., the purpose of this chapter is to promote public health by establishing minimum lot sizes and lot elevations necessary for proper sewage disposal in subdivisions not served by a public sewer.

History: Cr. Register, May, 1983, No. 329, eff. 6-1-83.

ILHR 85.002 Scope. (1) The provisions of this chapter apply to all proposed subdivisions that include proposed lots which are not to be served by existing public sewers or where provisions assuring for such service have not been made. Provisions assuring the availability of public sewer service shall be made through city, village, town or town sanitary district resolution or other official action requiring that all buildings within the proposed subdivision be served by public sewers prior to occupancy.

(2) Pursuant to s. 236.45, Stats., when required by local ordinance, the provisions of this chapter will apply to other divisions of land that do not meet the definition specified in s. ILHR 85.01 (21) for subdivision.

Note: Upon request, the department will review and comment on plans for other proposed divisions of land provided the appropriate fee as specified in s. Ind 69.22, Wis. Adm. Code, is received.

History: Cr. Register, May, 1983, No. 329, eff. 6-1-83.

ILHR 85.003 Application. The application of this chapter shall be limited as follows:

(1) The requirements in ss. ILHR 85.03 to 85.06 apply only to subdivision lots that will have one single family dwelling and one on-site sewage disposal system.

(2) For all other subdivision lots that do not fall within the scope of sub. (1), written department approval as to the availability of suitable soils for soil absorption shall be obtained prior to submitting a plat for review in accordance with s. 236.12, Stats.

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(a) Department acceptance shall not be issued unless adequate initial and replacement areas for soil absorption are available to dispose of the proposed wastewater flows specified in ch. ILHR 83.

(b) The soil absorption areas shall comply with the site and soil test requirements of ch. ILHR 83.

History: Cr. Register, May, 1983, No. 329, eff. 6-1-83.

ILHR 85.004 Community systems. Where individual subdivision lots are to be served by a community system of collection and disposal of sewage effluent by soil absorption, the recorded final plat shall be clearly marked to indicate this condition.

(1) If the components of such a community system are not in place and available to all of the lots when a plat is received by the department for review in accordance with s. 236.12, Stats., the department shall not certify that plat until the city, village, town or town sanitary district has, by resolution or other official action, required that buildings within the subdivision will be served by the community system prior to occupancy.

(2) All components of a community system shall be owned and maintained by a special purpose district.

(3) All components of a community system shall be accessible through easements, public right-of-ways or land ownership.

(4) (a) The effective soil absorption area for a community system shall be provided by at least 3 areas of equivalent size that together total at least 150% of the minimum area required under s. ILHR 85.003 (2).

(b) Each third of the effective soil absorption area shall alternately rest for 12 month periods, during which time each of the other 2 thirds shall be alternately dosed with a distribution supply pressure of at least 2.5 feet of head.

History: Cr. Register, May, 1983, No. 329, eff. 6-1-83.

ILHR 85.005 Saving and severable clauses. Should any portion of this chapter be declared invalid or unconstitutional for any reason, the remainder of this chapter shall not be affected thereby.

History: Cr. Register, May, 1983, No. 329, eff. 6-1-83.

ILHR 85.01 Definitions. For the purpose of this chapter, the following terms are defined as:

(1) "Approved" means being acceptable to the department.

(2) * "Average lot width" means the number computed by using distances between nonparallel side lot lines which are perpendicular to the line bisecting the angle formed by the side lot lines using the portion of the lot containing the minimum lot area. The average width between parallel lot lines is the perpendicular distance between them.

(3) "Bedrock" means the rocks that underlie soil material or that are at the earth's surface. Bedrock is encountered where the weathered in-place consolidated material larger than 2 millimeters in size is greater than 50% by volume.

*See Appendix for further explanatory material.

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(4) "Color" means the moist color of the soil based on the Munsell soil color charts.

(5) "Community water supply system" means a water system so designated and approved by the department of natural resources.

(6) "County" means the local governmental unit responsible for the regulation of private sewage systems as defined in s. 145.01 (15), Stats.

(10) "Minimum continuous suitable soil area" means that area of a lot which is contiguous and meets all of the requirements specified in s. ILHR 85.04 relating to flooding, high groundwater, bedrock, permeability, land slope and size.

(11) "Minimum lot area" means the area specified in s. ILHR 85.03 as the minimum area for a given situation.

(12) "Mound system" means a soil absorption system complying with the requirements of s. ILHR 83. 23.

(13) "Outlot" means a parcel of land, other than a lot or block, so designated on the plat.

(14) "Percolation test" means the method specified in s. ILHR 85.06 of testing absorption qualities of the soil.

(15) "Permeability" means the ease with which liquids move through soil.

(16) "Plat" means a map of a subdivision.

(17) "Public sewer" means sewers and treatment facilities used in connection therewith that ultimately result in surface discharge of effluent and that are also acceptable to or approved by the department of natural resources.

(18) "Soil" means all unconsolidated material overlying bedrock.

(19) "Soil boring" means an observation pit dug by hand or backhoe, a hole dug by augering or a soil core taken intact and undisturbed with a probe.

(20) "Soil saturation" means the state where all the pores in a soil are filled with water. Water will flow from saturated soil into a soil boring.

(21) "Subdivision" means a division of a lot, parcel or tract of land by the owner thereof, or the owner's agent for the purpose of sale or of building development, where:

(a) The act of division creates 5 or more parcels or building sites of 1½ acres each or less in area; or

(b) Five or more parcels or building sites of 1½ acres each or less in area are created by successive divisions within a period of 5 years.

Note: See s. ILHR 85.002 as to the application of this chapter as it pertains to land divisions that are defined by local ordinance as subdivisions.

(22) "System" means a soil absorption system for disposal of sewage effluent.

SUBCHAPTER II—ADMINISTRATION & ENFORCEMENT

ILHR 85.02 Department review. * (1) **SUBMITTAL.** (a) Plats of proposed subdivisions not served by public sewers shall be submitted to the department in accordance with the procedures specified in s. 236.12, Stats.

(b) In accordance with ch. 236, Stats., at least 3 copies of the plat for a proposed subdivision not served by public sewers shall be provided to the department for review.

(2) **PLATS.** All copies of plats submitted for department review shall be clear, legible and permanent, and shall include sufficient information for the department to judge if the proposed subdivision complies with the requirements of this chapter.

(a) Applicable information to be provided on a plat shall include, but not limited to:

5. Lot areas not meeting the minimum continuous suitable soil area requirements specified in s. ILHR 85.04.

(b) Applicable data to accompany the plat shall include, but not limited to:

1. Soil boring data;
2. Soil profile descriptions;
3. Percolation test data; and
4. Groundwater monitoring data.

(3) **FORMS.** Data for all soil tests shall be submitted on forms furnished by the department. The forms shall be signed by a soil tester who is certified by the department.

Note: Forms furnished by the department may be used for other purposes, if the purpose is identified on the form by the soil tester.

(4) **INVESTIGATIONS.** (a) The department or county may conduct field investigations to verify, including, but not limited to:

1. Depth to soil mottles;
2. Depth to observed groundwater;
3. Soil textures;
4. Depth to bedrock;
5. Land slope; and
6. Soil percolation rates.

(b) The department or county may require backhoe pits to be provided and may require percolation tests to be conducted under department or county supervision.

(c) The department or county may require the monitoring of groundwater levels in accordance with s. ILHR 85.06 (4) for proposed subdivisions where the natural soil has been altered.

*See Appendix for further explanatory material.

(5) **REVOCAION OF CERTIFICATION.** The department may rescind plat certification, issued under the provisions of this chapter, for any false statements or representation of facts on which the certification was issued.

(6) * **FEES.** Fees for department plat review and field investigations shall be submitted in accordance with s. Ind 69.22, Wis. Adm. Code.

(7) **PENALTIES.** The department may impose penalties and obtain additional remedies for violations of this chapter or ch. 236, Stats., as provided in ss. 145.02 (3) (f), 145.12 (1) and (2), and 236.31 (2), Stats.

Note #1: Section 145.02 (3) (f), Stats., states that the department may issue special orders directing and requiring compliance with the rules and standards of the department promulgated under this chapter whenever, in the judgment of the department, the rules or standards are threatened with violation, are being violated or have been violated. The circuit court for any county where violation of such an order occurs has jurisdiction to enforce the order by injunctive and other appropriate relief. The attorney general or the district attorney of the county where the violation of the order occurs shall bring action for its enforcement. The department may issue an order under this paragraph to abate a violation of s. 146.13 or 146.14.

Note #2: Section 145.12 (1), Stats., states that any person, firm or corporation who otherwise violates any provisions of this chapter, shall be fined not less than \$10 nor more than \$100 or imprisoned for 30 days or both. Each day such violation continues shall be a separate offense.

Note #3: Section 145.12 (2), Stats., states that any person violating this chapter or failing to obey a lawful order of the department, or a judgment or decree of a court in connection with this chapter, may be imprisoned for not more than three months or fined not more than \$100.

Note #4: Section 236.31 (2), Stats., states that any municipality, town, county or state agency with subdivision review authority may institute injunction or other appropriate action or proceeding to enjoin a violation of any provision of this chapter, ordinance or rule adopted pursuant to this chapter. Any such municipality, town or county may impose a forfeiture for violation of any such ordinance, and order an assessor's plat to be made under s. 70.27 at the expense of the subdivider or his agent when a subdivision is created under s. 236.02 (8) (b) by successive divisions.

History: Cr. Register, May, 1983, No. 329, eff. 6-1-83.

SUBCHAPTER III—LOT STANDARDS

ILHR 85.03 Lot area and average lot widths. (1) **GENERAL.** The area of any unsewered lot shall be sufficient to permit the installation and use of a soil absorption system and one replacement system based upon the results of soil tests conducted in accordance with s. ILHR 85.06.

(2) **AREA AND WIDTH.** Except as provided in sub. (3), each lot, based upon its percolation rate classification and its water supply system, shall have a minimum lot area and a minimum average lot width not less than that specified in Table 85.03. Any portion of a lot having a width of less than 30 feet shall not be considered in determining the minimum lot area.

(a) **Community water supply.** The department shall consider a community water supply system available, if plans for such a supply system have been approved by the department of natural resources. In addition, the controlling local governmental unit shall by resolution or other official action require water service lines to be extended to buildings within the subdivision prior to occupancy.

(b) **Easements.** 1. Any easement or combination of adjacent easements which is greater than 20 feet wide shall not be considered in determining minimum lot area unless approved in writing by the department.

*See Appendix for further explanatory material.

2. The minimum lot area shall not be divided by any easement unless approved in writing by the department.

(3) LOT COMBINATIONS. Pending installation of public sewers, the minimum lot areas and the minimum average lot widths specified in Table 85.03 may be provided through use of 2 or more lots, if suitable lot combinations are designated on the recorded final plat.

Table 85.03
LOT AREAS AND WIDTHS

Class	PERCO- LATION RATE Minutes Required for Water to Fall One Inch	PRIVATE WATER SUPPLY SYSTEMS			COMMUNITY WATER SUPPLY SYSTEMS		
		Minimum Lot Area (square feet)	Minimum Average Lot Width (feet)	Minimum Continuous Suitable Soil Area (square feet)	Minimum Lot Area (square feet)	Minimum Average Lot Width (feet)	Minimum Continuous Suitable Soil Area (square feet)
1	Under 10	20,000	100	10,000	12,000	75	6,000
2	10 to less than 30	20,000	100	10,000	14,000	75	7,000
3	30 to less than 45	25,000	100	12,500	16,000	75	8,000
4	45 to 60	30,000	100	15,000	18,000	100	9,000
5	greater than 60 to 120 (mound systems only)	30,000	100	15,000	18,000	100	9,000

Note: Chapter NR 112, Wis. Adm. Code, requires a 1,200 foot separation between potable water supply wells and proposed or existing sanitary landfills. The department of natural resources should be consulted if a community water supply well is located in or near a proposed unsewered subdivision.

History: Cr. Register, May, 1983, No. 329, eff. 6-1-83.

ILHR 85.04 Elevation. Unless reduced under sub. (7), each lot, based upon its percolation rate classification and its water supply system, shall have a minimum continuous suitable soil area not less than that specified in Table b 85.03. The minimum continuous suitable soil area shall meet all of the elevation requirements specified in this section relating to floodwater, high groundwater, bedrock, permeability and land slopes.

(1) FLOODWATER. (a) *Rivers, streams and flow-through lakes.* All of a lot's minimum continuous suitable soil area and at least 90% of a lot's minimum lot area shall be above the elevation of the regional flood as defined in ch. NR 116, Wis. Adm. Code. Where this is a factor, the regional flood elevation shall be delineated and so labeled on the recorded final plat. This elevation shall be verified by the department of natural resources.

(b) *Other bodies of water.* All of a lot's minimum continuous suitable soil area and at least 90% of a lot's minimum lot area shall be at least 2 feet above the highest known water elevation of any body of water not covered under par. (a). Where this is a factor, the contour 2 feet above the highest known water elevation shall be delineated and so labeled on the recorded final plat.

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(2) **GROUNDWATER AND BEDROCK.** (a) *Subsurface systems.* Except as provided in par. (b), the minimum continuous suitable soil area shall have a minimum of 3 feet of soil between the bottom of the proposed systems and high groundwater and bedrock.

(b) *Mound systems.* Where mound systems are proposed, the minimum continuous suitable soil area shall have a minimum of 2 feet of soil from existing grade to high groundwater and bedrock.

(c) *Noncomplying areas.* Any lot areas not meeting the requirements of pars. (a) or (b) shall be delineated on all plats.

(3) **PERMEABILITY.** (a) *Subsurface systems.* Except as provided in par. (b), within the minimum continuous suitable soil area, a percolation rate of 60 minutes per inch or faster shall exist for the depth of the proposed systems and to at least 3 feet below that.

(b) *Mound systems.* Within the minimum continuous suitable soil area where mound systems are proposed, a percolation rate of 120 minutes per inch or faster shall exist for a depth of at least 2 feet below the existing grade.

(c) *Noncomplying areas.* Any lot areas not meeting the requirements of par. (a) or (b) shall be delineated on all plats.

(4) **LAND SLOPES.** (a) *Subsurface systems.* 1. Except as provided in par. (b), land slopes within the minimum continuous suitable soil area shall not exceed 20%. A land surveyor registered in Wisconsin shall certify that all minimum continuous suitable soil areas do not have any land slopes exceeding 20 percent.

2. Areas where land slopes exceed 20% shall be accurately delineated on a plat.

(b) *Mound systems.* 1. Where mound systems are proposed:

a. Land slopes shall not exceed 12% within minimum suitable soil areas with percolation rates of 30 minutes per inch or faster; or

b. Land slopes shall not exceed 6% within minimum suitable soil areas with percolation rates slower than 30 minutes per inch, but not slower than 120 minutes per inch.

2. A land surveyor shall certify to the department that all minimum continuous suitable soil areas for proposed mound systems are free of land slopes exceeding the percentages of subd. 1.

(5) **MOUND SYSTEMS.** The recorded final plat shall clearly indicate which lots, if any, must use mound systems due to the availability of suitable soils.

(6) **EASEMENTS.** Minimum continuous suitable soil areas shall not include any easement, unless approved in writing by the department.

(7) **REDUCED MINIMUM CONTINUOUS SUITABLE SOIL AREAS.** The minimum continuous suitable soil areas may be reduced to not less than the minimums specified in Table 85.04 if building area, well area and 2 system areas are replanned and designated on the recorded final plat.

(a) *General.* The shape and location of such preplanned areas shall be such that 2 trench type systems can be installed to serve a 4 bedroom home.

1. Preplanned areas shall be clearly shown either on all plats or on separate sheets, provided that the recorded final plat is clearly marked to show which lots have preplanned areas.

2. No changes in preplanned areas may be made unless approved in writing by the department.

Table 85.04
PREPLANNED LOTS

LOT CLASS	MINIMUM SQUARE FEET REQUIRED FOR EACH PREPLANNED SYSTEM AREA (MINIMUM OF TWO AREAS REQUIRED)
1	2,000
2	3,000
3	3,600
4	3,900

(b) *Separating distances.* The reduced minimum continuous suitable soil areas shall be at least:

1. Fifty feet from the high water mark of any lake, stream or other watercourse, well or water reservoir;

2. Twenty-five feet from any habitable building or dwelling or building with below grade foundation which will remain in use after sale of the lot;

3. Twenty feet from the top of land slopes exceeding 20% except where the top of the aggregate of a system is at or below the level of the flow line of an adjacent roadside ditch; and

4. Five feet from any lot line.

(c) *Approved comparable lot layout design.* When compliance with the requirements of this section is impractical and satisfactory proof is provided that systems can be installed in complete accord with ch. ILHR 83, the department may approve in writing further reductions in depths and areas of the minimum continuous suitable soils.

Note: Chapter ILHR 83 contains requirements for systems proposed to be installed at sites which have been altered by filling or attempts to overcome steep slopes.

History: Cr. Register, May, 1983, No. 329, eff. 6-1-83.

ILHR 85.05 Outlot restrictions. Any outlots that do not meet the lot area, width, or elevation requirements specified in ss. ILHR 85.03 and 85.04 shall be restricted by a clearly labeled restriction on the recorded final plat. This restriction shall prohibit the construction of buildings for human habitation until public sewers are available and shall prohibit the installation of soil absorption systems on such outlots.

History: Cr. Register, May, 1983, No. 329, eff. 6-1-83.

SUBCHAPTER IV—SOIL EVALUATION

ILHR 85.06 Soil tests. The evaluation of soil profiles, percolation testing and monitoring of groundwater shall be conducted by a soil tester certified by the department. Either the soil tester or land surveyor shall certify on a plat submitted to the department that all soil test sites shown thereon are accurately located and that all soil test depths are referenced to the final grade of the subdivision as established during the time of testing.

Note #1: Forms furnished by the department can be used for other purposes if the purpose is identified on the form by the soil tester.

Note #2: Since there can be considerable variation in the ability of soil to absorb sewage effluent on the individual lots in an approved subdivision, attention is directed to the necessity of conducting individual lot soil borings, profile evaluations and percolation tests as specified in ch. ILHR 83 prior to construction of any system.

(1) SOIL BORINGS. Each soil boring shall be of a size and extent to determine the soil characteristics important to on-site liquid waste disposal. Soil borings shall be conducted prior to percolation testing to determine whether the soils are suitable to warrant percolation tests and if suitable, at what depths percolation tests shall be conducted.

(a) General. The use of power augers for soil borings is prohibited. If soil borings are not dug with a backhoe, the soil tester shall so report on the soil test data form. The soil borings shall be distributed as uniformly as possible and their locations shall be shown on a plat submitted to the department.

(b) Number of soil borings. 1. At least one soil boring per acre shall be made initially, if a detailed soil map for the area is not available to the department.

2. At least one soil boring per 3 acres shall be made initially, if a detailed soil map for the area is available to the department.

3. Where initial soil borings indicate marked variations in depths to bedrock, high groundwater or restrictive permeability, at least 2 soil borings per acre shall be made.

4. Where proposed lot areas exceed one acre and where uniform soil conditions exist, at least one soil boring per 5 acres shall be made.

(c) Depth of soil borings. 1. All soil borings shall extend to a depth of at least 6 feet or to bedrock, if present at a lesser depth.

2. All soil borings in minimum continuous suitable soil areas shall extend at least 4 feet below an expected depth of a system.

3. The depth of a soil boring shall be referenced to the final grade of the subdivision.

(2) SOIL PROFILE DESCRIPTIONS. Soil profile descriptions shall be written for all borings.

(a) General. Soil profile descriptions shall indicate the thickness in inches of the different soil horizons observed. Horizons shall be differentiated on the basis of color, texture, soil mottles or bedrock.

(b) Data. Soil profile descriptions shall include:

1. The depth to observed groundwater, if present;

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2. The depth to bedrock, if present;
3. The depth to soil mottling, if present;
4. An estimated depth to high groundwater; and
5. The texture and color of the soil horizons.

(c) *Observed groundwater.* Observed groundwater shall be reported at the level groundwater reaches in the boring or at the highest level of sidewall seepage into the boring. Measurements shall be made from ground surface. Soil above the water level in the soil boring shall be checked for the presence of soil mottles.

(d) *Bedrock.* The depth to bedrock except monolithic sandstone shall be established at the depth in a soil profile where greater than 50% of the weathered in-place material is consolidated. Monolithic sandstone bedrock shall be established at the depth where an increase in resistance to penetration of a knife blade occurs.

(e) *Soil mottles.* Zones of seasonal or periodic soil saturation shall be estimated at the highest level of soil mottles. The department or county may require a detailed description of the soil mottles on a marginal site. The abundance, size, contrast and color of the soil mottles should be described in the following manner:

1. Abundance:
 - a. Few, if the mottled color occupies less than 2% of the exposed surface;
 - b. Common, if the mottled color occupies from 2 to 20% of the exposed surface; or
 - c. Many, if the mottled color occupies more than 20% of the exposed surface.
2. Size, referring to length of the mottle measured along the longest dimension:
 - a. Fine, if the mottle is less than 5 millimeters;
 - b. Medium, if the mottle is from 5 millimeters to 15 millimeters; or
 - c. Coarse, if the mottle is greater than 15 millimeters.
3. Contrast, referring to the difference in color between the soil mottle and the background color of the soil:
 - a. Faint, if the mottle is evident but recognizable only with close examination;
 - b. Distinct, if the mottle is readily seen but not striking; or
 - c. Prominent, if the mottle is obvious and one of the outstanding features of the horizon.
4. Color of the mottle.

(f) *Color patterns not indicative of soil saturation.* 1. One Foot Exception. Soil profiles that have an abrupt textural change of finer textures overlying at least 4 feet of unmottled, loamy sand or coarser textures, can have a mottled zone in the finer textures. If the mottled zone is less than 12 inches thick and is immediately above the textural

change, then a system may be installed in the underlying loamy sand or coarser textures. If any soil mottles occur within the underlying loamy sand or coarser textures, then the site shall be unsuitable. The department or county may determine certain coarse sandy loam soils to be included as a coarse material.

2. Other Soil Color Patterns. Soil mottles can occur that are not due to zones of seasonal or periodic soil saturation. Examples of such soil conditions not limited by enumeration are as follows:

- a. Soil mottles formed from residual sandstone deposits;
- b. Soil mottles formed from uneven weathering of glacially deposited material, or glacially deposited material that may have been originally gray in color. This may include concretionary material in various stages of decomposition;
- c. Deposits of lime in a profile derived from highly calcareous parent material;
- d. Light colored silt or dark colored clay coats deposited on soil ped faces;
- e. Soil mottles that are usually vertically oriented along old or decayed root channels with a dark organic stain usually present in the center of the mottled area; and
- f. Greenish colored calcite deposits.

3. Reporting Exceptions. A soil tester shall not disregard any mottled soil condition. If soil mottles are observed that may not be due to periodic saturation, the soil tester shall report such condition and may request a determination from the department or county as to suitability of the site.

(3) PERCOLATION TESTS AND PROCEDURES. Percolation tests shall be distributed as uniformly as possible in suitable soil areas and their locations shall be shown on a plat submitted to the department.

(a) *Percolation test hole.* A percolation test hole shall be dug or bored. The hole shall have vertical sides and have a horizontal dimension of 4 to 8 inches. The bottom and sides of the hole shall be carefully scratched with a sharp pointed instrument to expose the natural soil. All loose material shall be removed from the hole and the bottom shall be covered with 2 inches of gravel or coarse sand.

(b) *Number of percolation tests.* 1. At least one percolation test per acre shall be made initially, if a detailed soil map for the area is not available to the department.

2. At least one percolation test per 3 acres shall be made initially, if a detailed soil map for the area is available to the department.

3. Where percolation test results indicate marked variations in soil permeability, at least 2 percolation tests per acre shall be made.

4. Where proposed lot areas exceed one acre and where uniform soil conditions exist, at least one percolation test per 5 acres shall be made.

5. Where loamy sand or coarser material exists for the thickness of the proposed systems and to at least 3 feet below that, percolation tests are not required.

6. The department may waive the necessity for conducting soil percolation tests where a detailed soil map clearly indicates soil permeability equivalent to the class of lot proposed. Such a waiver shall be obtained in writing from the department prior to the review of a preliminary or final plat submitted in accordance with ss. 236.11 and 236.12, Stats.

(c) *Depth of percolation test.* Except as provided in subds. 1. and 2., all percolation tests shall be made at the depth at which the soil absorption systems are to be installed. The final grade of the subdivision shall control the percolation test depth.

1. Additional percolation tests may be required at depths to 3 feet below proposed systems in order to show that percolation rates are 60 minutes per inch or faster therein.

2. Where mound systems are proposed, percolation tests shall be conducted within 12 to 24 inches from the ground surface at the depth of the estimated slowest permeability.

(d) *Test procedures in sandy soils.* For percolation tests conducted in sandy soils the percolation test hole shall be carefully filled with clear water to a minimum depth of 12 inches above the bottom of the hole. The time for this amount of water to seep away shall be determined and this procedure shall be repeated. If the water from the second filling of the hole seeps away in 10 minutes or less, the test may proceed immediately as follows. Water shall be added to a point not more than 6 inches above the gravel or coarse sand. Thereupon, from a fixed reference point, water levels shall be measured at 10 minute intervals for a period of one hour. If 6 inches of water seeps away in less than 10 minutes, a shorter interval between measurements shall be used, but in no case shall the water depth exceed 6 inches. If 6 inches of water seeps away in less than 2 minutes, the test shall be stopped and a rate of less than 3 minutes per inch shall be reported. The final water level drop shall be used to calculate the percolation rate. Soils not meeting the above requirements shall be tested as in par. (e).

(e) *Test procedures in nonsandy soils.* For percolation tests conducted in nonsandy soils, the percolation test hole shall be carefully filled with clear water and a minimum water depth of 12 inches shall be maintained above the bottom of the hole for a 4-hour period by refilling whenever necessary or by use of an automatic siphon. Water remaining in the hole after 4 hours shall not be removed. Thereafter, the soil shall be allowed to swell not less than 16 hours nor more than 30 hours. Immediately following the soil swelling period, the measurements for determining the percolation rate shall be made as follows. Any soil which has sloughed into the hole shall be removed and the water level shall be adjusted to 6 inches over the gravel or coarse sand. Thereupon, from a fixed reference point, the water level shall be measured at 30 minute intervals for a period of 4 hours unless 2 successive water level drops do not vary by more than 1/16 of an inch. At least 3 water level drops shall be observed and recorded. The hole shall be filled with clear water to a point not more than 6 inches above the gravel or coarse sand whenever it becomes nearly empty. Adjustment of the water level shall not be made during the last 3

measurement periods except to the limits of the last measured water level drop. If the first 6 inches of water seeps away in less than 30 minutes, the time interval between measurements shall be 10 minutes and the test shall be run for one hour. The water depth shall not exceed 6 inches at any time during the measurement period. The drop that occurs during the final measurement period shall be used in calculating the percolation rate.

(f) *Interpretation of percolation rates.* In interpreting percolation test results, the percolation rates for the same kind of soil which establish larger minimum lot areas shall be used to determine compliance with s. ILHR 85.03.

(4) **MONITORING GROUNDWATER LEVELS.** A property owner or developer has the option to provide documentation that soil mottling or other color patterns at a particular site are not an indication of seasonally saturated soil conditions or high groundwater levels. Documentation shall be made by monitoring groundwater observation wells in accordance with the procedures specified in this subsection.

(a) *Precipitation.* The monitoring shall only be conclusive in a near normal spring season when the precipitation equals or exceeds, for the consecutive periods of September 1st through the last day of February and March 1st to through May 31st, 8.5 inches and 7.6 inches, respectively.

1. The presence of water above a level 3 feet below the estimated system depth for a period of at least 7 days shall be indicative of unsuitable soils regardless of the amount of rainfall.

2. Precipitation totals shall be calculated from data gathered at weather stations of the national weather service or other approved recording stations.

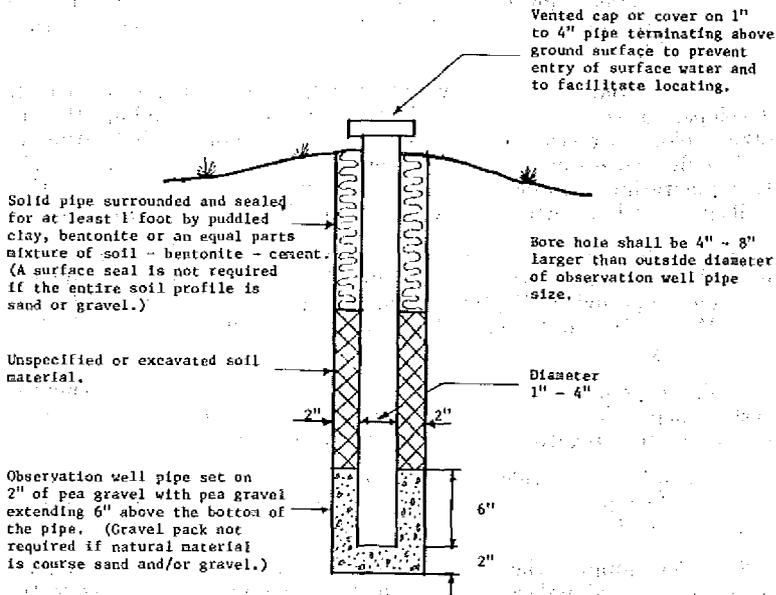
3. In determining whether a near normal spring occurred where sites are subject to regional water tables, such as large areas of sandy soils, the fluctuation over the several year cycle shall be considered. In such cases, data obtained from the United States geological survey shall be used to determine if a regional water table was at or near its normal level.

(b) *Artificial drainage.* Areas where groundwater levels are to be monitored shall be carefully checked for drainage tile and open ditches which could have altered high groundwater levels. Where such factors are involved, documentation of the location, design, ownership and maintenance responsibilities for such drainage shall be provided. Documentation shall include proof that the drainage network has an adequate outlet that will be maintained. Sites drained by agricultural drain tile shall not be acceptable for system installation.

(c) *Monitoring procedures.* 1. Prior to beginning groundwater monitoring each year, the soil tester shall notify the department and county of intent to monitor. The department shall be consulted for number, location and depth of monitoring wells prior to installation.

2. Monitoring wells for observing groundwater levels shall be designed, constructed and installed in accordance with Figure 85.06.

Figure 85.06
MONITORING WELL



a. Except as provided in subpar. b., monitoring wells shall extend at least 3 feet below an expected depth of a system.

b. The department may require at least one well to be more than 3 feet deeper than proposed systems in areas subject to regional water tables.

(d) *Observations.* 1. The first observation and measurement of any groundwater in monitoring wells shall be made between March 1st and March 15th. Similar observations and measurements shall be made thereafter every 7 days or less until June 1st or until the site is determined to be unsuitable, whichever comes first. If water is observed at any time above a level 3 feet below the estimated system depth, an observation shall be made 4 days later. If water is present above a level 3 feet below the estimated system depth at both observations, the site shall be unsuitable. If water is not observed above a level 3 feet below the estimated system depth at the second observation, monitoring shall continue as originally scheduled.

2. The occurrence of rainfall of $\frac{1}{4}$ inch or more within a 24 hour period during the monitoring may necessitate observations at more frequent intervals.

(e) *Percolation tests.* If monitoring of groundwater levels is conducted in mottled loess, the monitoring shall include percolation tests conducted in the loess at the proposed system depth and 3 feet below during the period of April 1st through April 22nd. The department shall supervise a representative number of such percolation tests.

(f) *Monitoring data.* Whether or not monitoring indicates suitable site conditions, one copy of the following groundwater monitoring data shall be submitted to the department and to the county. The data in subds. 7 and 8 is not required for unsuitable sites.

1. A map showing test locations, preferably at a scale of 1" = 100'.
2. Soil profile descriptions.
3. Soil series if available from soil maps.
4. Dates observed.
5. Depths of wells and results of observations.
6. Local precipitation data; monthly from September 1st to June 1st and daily during monitoring.
7. Ground elevations at the wells or a 2 foot topographic contour map of the area.
8. Information on artificial drainage.

(g) *Plat restriction.* Where expected depths to high groundwater are based on results of groundwater monitoring, the department may require a restriction on the plat prohibiting installation of systems below certain depths.

(5) **WINTER SOIL TESTING.** Soil testing shall be done only when weather and light conditions make accurate evaluation of site conditions possible. Soil testing attempted under winter conditions is difficult and precautions shall be observed.

(a) *Soil evaluations.* Soil profile evaluations conducted between November 15th and March 15th shall be in accordance with the following procedures:

1. Soil borings shall be made with a backhoe;
2. Soil profiles shall be evaluated only between the hours of 10:00 a.m. and 2:00 p.m. when the sky is not completely overcast; and
3. Frozen soil material shall be thawed for hand texturing.

(b) *Percolation tests.* Percolation tests that are unprotected shall be conducted only on days when the air temperature is 20° F or higher and the wind velocity is 10 mph or less. A heated structure or other protection from freezing shall be provided when the weather conditions listed above are not met. The bottom of the test hole shall be at least 12 inches below frost depth. If water freezes in the test hole at any time, the test data shall be void.

History: Cr. Register, May, 1983, No. 329, eff. 6-1-83.